Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Claim 1 (Currently amended): A collimator assembly for an X-ray imaging system comprising adjustable X-ray attenuating collimator vanes ~~that~~ arranged to define ~~the~~ an area of a patient to be exposed to an X-ray beam, ~~characterised in that the collimator vanes are automatically-driven under the control of~~ and an image processing apparatus arranged to automatically control driving the collimator vanes to attenuate the X-ray beam to form exposure fields of chosen shape.

Claims 2-22 (Cancelled)

Claim 23 (New) An assembly as claimed in claim 1, which comprises a combination of a first manually driven collimator, which employs opaque collimator vanes arranged to provide rectangular exposure fields, and a second collimator comprising the automatically-driven collimator.

Claim 24 (New) An assembly as claimed in claim 1 , in which the collimator vanes have an X-ray transmission profile selected from: uniform and opaque; partially transparent with uniform transmission; partially transparent width a linear wedge shaped transmission profile; partially transparent with an exponential transmission profile; partially transparent with a parabolic transmission profile; and partially transparent with an arbitrary transmission profile.

Claim 25 (New) An assembly as claimed in claim 1, in which the X-ray exposure field has a centre and an edge, wherein the vanes comprise partially transparent collimator vanes which are most transparent towards the centre of the X-ray field and least transparent at the edge of the X-ray field.

Claim 26 (New) An assembly as claimed in claim 1, in which the radiation field has a periphery and a normally exposed region, the vanes comprising a partially transparent collimator vane which is opaque at the periphery, or within the normally exposed region, of the radiation field.

Claim 27 (New) An assembly as claimed in claim 1, wherein the vanes are partially transparent collimator vanes having an X-ray transmission wherein the X-ray transmission is of 2 to 10% of the normal intensity.

Claim 28 (New) An assembly as claimed in claim 1, wherein the vanes are arranged in collimator vane configurations selected from: two sets of opposing pairs of flat opaque material; flexible attenuating material such as lead rubber; slats of attenuating material arranged to draw over each other; and multiple opposing collimator vanes.

Claim 29 (New) An assembly as claimed in claim 1, wherein the vanes have an edge profile arranged such that no gaps of high X-ray transmission appear between the vanes as they are moved.

Claim 30 (New) An assembly as claimed in claim 1, wherein , each vane is extendable into the radiation field independently of all the others.

Claim 31 (New) An assembly as claimed in claim 30, in which the radiation field has sides, wherein the vanes comprise two sets of parallel vanes and each set comprises 8 to 20 vanes, the sets being in opposed positions on each side of the radiation field.

Claim 32 (New) An assembly as claimed in claim 1, in which the vanes of the automatically driven collimator have a transmission profile, wherein the profile is a varying transmission profile.

Claim 33 (New) An assembly as claimed in claim 1 further comprising, an individual drive means associated with each of the vanes of the automatically driven collimator arranged to move the vane independently of other vanes.

Claim 34 (New) An assembly as claimed in claim 33, comprising one of a d.c. motor and a stepping motor in which the drive means comprises a wire drive and pulleys under the control of the motor.

Claim 35 (New) An assembly as claimed in claim 34, in which the drive means includes a mechanical clutch arranged to couple mechanical power from the motor to the pulleys.

Claim 36 (New) An assembly as claimed in claim 33, in which the drive means comprises one of a linear actuator and a solenoid.

Claim 37 (New) An assembly as claimed in claim 1, in which each of the vanes of the automatically driven collimator is under mechanical tension so that it must be actively driven to move across the radiation field.

Claim 38 (New) An assembly as claimed in claim 37, in which the mechanical tension is provided by spring-loading.

Claim 39 (New) An assembly as claimed in claim 1, further comprising an encoder arranged to ensure accurate positioning of the vanes relative to the radiation field.

Claim 40 (New) An assembly as claimed in claim 1, wherein the radiation field has a centre and the automatically driven collimator forms part of an assembly which is rotatable about the centre of the radiation field.

Claim 41 (New) An assembly as claimed in claim 40, in which the radiation field has a periphery and the assembly further comprises a motor-driven cog and a circular gear wherein the cog and gear are arranged to surround the periphery of the radiation field and to rotate the assembly.

Claim 42 (New) An assembly as claimed in claim 1, in which each vane is arranged to be driven independently to an arbitrary angle to allow field shapes selected from parallelepipeds, squares and diamonds.

Claim 43 (New) An assembly as claimed in claim 1, which comprises an iris assembly created from the X-ray attenuating vanes which are each rotatable about points located outside of the normally exposed radiation field.

Claim 44 (New) An assembly as claimed in claim 1, comprising individual mechanical components and an electronic circuit arranged to control, power and monitor the position of the individual mechanical components within the collimator.